

IN THE CLAIMS:

This Amendment is formatted in accordance with the revised format permitted at 1267 Official Gazette, entitled "Amendments In Revised Format Now Permitted".

- A' 1. (Currently Amended) An ink jet recording apparatus comprising:
- a recording head for discharging ink from a plurality of discharge ports and recording onto a recording medium;
 - a carriage on which said recording head is mounted and which reciprocally scans on said recording medium;
 - recording medium conveying means for conveying said recording medium in the direction perpendicular to a scanning direction of said carriage by a predetermined distance each time said carriage reciprocally scans on said recording medium;
 - an ink tank mounted at a position where it does not exercise an influence on the reciprocative scan of said carriage and the conveyance of said recording medium by said recording medium conveying means;
 - an ink supply tube for supplying the ink from said ink tank to said recording head; and
 - control means for controlling an ink discharge state of said recording head on the basis of an image signal which is inputted from ~~an upper~~ a host apparatus,
- wherein said control means adjusts a scanning speed of said carriage so as to suppress an increase in negative pressure in said supply tube.

2. (Currently Amended) An ink jet recording apparatus comprising:
a recording head for discharging ink from a plurality of discharge ports and
recording onto a recording medium;

a carriage on which said recording head is mounted and which
reciprocatively scans on said recording medium;

recording medium conveying means for conveying said recording medium
in the direction perpendicular to a scanning direction of said carriage by a predetermined
distance each time said carriage reciprocatively scans on said recording medium;

an ink tank mounted at a position where it does not exercise an influence on
the reciprocative scan of said carriage and the conveyance of said recording medium by
said recording medium conveying means;

an ink supply tube for supplying the ink from said ink tank to said recording
head; and

control means for controlling an ink discharge state of said recording head
on the basis of an image signal which is inputted from ~~an upper~~ a host apparatus,

wherein said control means adjusts a non-recording time as a time during
which no ink is discharged from said recording head so as to recover a pressure in said
supply tube.

3. (Currently Amended) An ink jet recording apparatus comprising:
a recording head for discharging ink from a plurality of discharge ports and
recording onto a recording medium;

a carriage on which said recording head is mounted and which reciprocatively scans on said recording medium;

recording medium conveying means for conveying said recording medium in the direction perpendicular to a scanning direction of said carriage by a predetermined distance each time said carriage reciprocatively scans on said recording medium;

an ink tank mounted at a position where it does not exercise an influence on the reciprocal scan of said carriage and the conveyance of said recording medium by said recording medium conveying means;

an ink supply tube for supplying the ink from said ink tank to said recording head; and

control means for controlling an ink discharge state of said recording head on the basis of an image signal which is inputted from ~~an upper~~ a host apparatus,

wherein said control means adjusts the number of overlap recording scanning times of said carriage so as to recover a pressure in said supply tube.

4. (Amended) An apparatus according to either one of claim 1 or 2, wherein a pressure smoothing tank which can store the ink of a predetermined capacity is arranged between said supply tube and said recording head in order to suppress the increase in negative pressure in said supply tube.

5. (Original) An apparatus according to claim 4, wherein the capacity of said pressure smoothing tank is equal to or larger than 1 cc.

6. (Amended) An apparatus according to either one of claim 1 or 2, wherein when the number of dots to be discharged of the ink which is discharged from said recording head per unit time, in which said number has been calculated from said image signal, is equal to or larger than a reference discharge number, said control means determines that the negative pressure in said supply tube has increased.

7. (Original) An apparatus according to claim 6, wherein when a print duty is equal to a predetermined value, said reference discharge number is equal to a discharge number in which it has previously been confirmed that no recording variation occurs.

8. (Original) An apparatus according to claim 6, wherein said reference discharge number is equal to a reference discharge number calculated on the basis of an ink flow rate and a presumed negative pressure calculated by a predetermined pressure calculating equation.

9. (Original) An apparatus according to claim 4, wherein the increase in negative pressure in said tube is detected by a pressure sensor provided in said pressure smoothing tank.

10. (Amended) An apparatus according to either one of claim 1 or 2, further comprising recovery means for recovering a discharge state of the ink of said recording head to a good state by forcibly discharging the ink from each discharge port of said recording head.

11. (Amended) An apparatus according to either one of claim 1 or 2, wherein said recording head has an electrothermal converting element for converting an electric energy into a thermal energy and discharges the ink by using a film boiling that is caused in the ink by the thermal energy which is applied by said electrothermal converting element.

12. (Currently Amended) An ink jet recording method in a recording control method for an ink jet recording apparatus comprising:

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a recording head for discharging ink from a plurality of discharge ports and recording onto a recording medium;

a carriage on which said recording head is mounted and which reciprocally scans on said recording medium;

recording medium conveying means for conveying said recording medium in the direction perpendicular to a scanning direction of said carriage by a predetermined distance each time said carriage reciprocally scans on said recording medium;

an ink tank mounted at a position where it does not exercise an influence on the reciprocative scan of said carriage and the conveyance of said recording medium by said recording medium conveying means;

an ink supply tube for supplying the ink from said ink tank to said recording head; and

control means for controlling an ink discharge state of said recording head on the basis of an image signal which is inputted from ~~an upper~~ a host apparatus,

wherein said method has a step of reducing a scanning speed of said carriage when ~~the~~ a calculated number of dots (~~to be discharged~~) of the ink ~~which is to be~~ discharged from said recording head per unit time, in which said number ~~has been~~ is calculated from said image signal, is equal to or larger than a reference discharge number.

13. (Currently Amended) An ink jet recording method in a recording control method for an ink jet recording apparatus comprising:

a recording head for discharging ink from a plurality of discharge ports and recording onto a recording medium;

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a carriage on which said recording head is mounted and which reciprocally scans on said recording medium;

recording medium conveying means for conveying said recording medium in the direction perpendicular to a scanning direction of said carriage by a predetermined distance each time said carriage reciprocally scans on said recording medium;

an ink tank mounted at a position where it does not exercise an influence on the reciprocative scan of said carriage and the conveyance of said recording medium by said recording medium conveying means;

an ink supply tube for supplying the ink from said ink tank to said recording head; and

control means for controlling an ink discharge state of said recording head on the basis of an image signal which is inputted from ~~an upper~~ a host apparatus,

wherein said method has a step of extending a non-recording time as a time during which no ink is discharged from said recording head when ~~the~~ a calculated number

of dots (~~to be discharged~~) of the ink ~~which is~~ to be discharged from said recording head per unit time, in which said number has been calculated from said image signal, is equal to or larger than a reference discharge number.

14. (Currently Amended) An ink jet recording method in a recording control method for an ink jet recording apparatus comprising:

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a recording head for discharging ink from a plurality of discharge ports and recording onto a recording medium;

a carriage on which said recording head is mounted and which reciprocally scans on said recording medium;

recording medium conveying means for conveying said recording medium in the direction perpendicular to a scanning direction of said carriage by a predetermined distance each time said carriage reciprocally scans on said recording medium;

an ink tank mounted at a position where it does not exercise an influence on the reciprocative scan of said carriage and the conveyance of said recording medium by said recording medium conveying means;

an ink supply tube for supplying the ink from said ink tank to said recording head; and

control means for controlling an ink discharge state of said recording head on the basis of an image signal which is inputted from ~~an upper~~ a host apparatus,

wherein said method has a step of increasing the number of overlap recording scanning times of said carriage when ~~the~~ a calculated number of dots (~~to be discharged~~) of the ink ~~which is~~ to be discharged from said recording head per unit time, in

which said number has been calculated from said image signal, is equal to or larger than a reference discharge number.

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15. (Amended) A method according to either one of claim 12 or 13, wherein said reference discharge number is equal to a reference discharge number calculated on the basis of an ink flow rate and a presumed negative pressure calculated by a predetermined pressure calculating equation.
